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SOME TERATOLOGICAL FORMS OF TRILLIUM UNDULATUM.

Walter Deane.

Three interesting cases of teratological modification have come to my notice in our common Painted Trillium, *T. undulatum*, Willd., perhaps more familiar under the name *T. erythrocarpum*, Michx. Although many monstrosities have been observed in the Trilliums of the northeastern United States, abnormal development in this particular species seems to have been rarely noticed, for a careful search through American botanical journals has brought to light but two authentic records of this kind. It seems fitting, therefore, to record the forms recently observed.

The first case is as follows. The plant grew at Squam Lake, Holderness, New Hampshire, on the grounds of Mr. Edwin DeMeritte, who has a summer camp there. He noticed this Trillium for the first time on August 6 or 7, 1907, and writes that "there were two stems precisely alike growing side by side. . . . in the leaf-mould and scanty soil on a rocky ridge near the lake." One of these specimens Mr. DeMeritte picked and, through the kindness of Mr. William Brewster, presented to the Gray Herbarium, where I have had access to it, as well as to the other specimens to be mentioned later.

The plant was in fruit, which was "well formed and apparently ripe or nearly so, as it had turned red." Unfortunately when the specimen reached Cambridge the fruit and its pedicel were gone, but I am assured that these were normal, the three persistent sepals being present. Mr. DeMeritte writes that the fruit "was at the end of the stem above the upper tier of leaves exactly as when only one tier is found." Whether the petals and stamens were normal it is of

course impossible to say at present, as the plant was not observed in flower. Irregularities of this sort, however, have been shown to be remarkably persistent, and observations will be made during the coming season to determine this point.

The striking abnormality of this plant lies in the fact that, instead of the single whorl of leaves normally present, there are here three such whorls, one above the other, and separated by well developed internodes. Each whorl contains three leaves of normal size and shape. The leaves of the uppermost whorl, which is at the top of the stem, are narrowly ovate, taper-pointed, sessile, and from 7.5 to 9 cm. long. Those of the middle whorl, which is 4.5 cm. below the uppermost, are ovate, taper-pointed, slightly petioled, and 11.5 cm. long. The lowest whorl is 4.8 cm. below the middle one, and its leaves are broadly ovate, taper-pointed, 12.5 to 13.3 cm. long, and borne on petioles 2.5 cm. in length.

A similar teratological formation in the case of *Trillium sessile* has been recorded by Mr. L. S. Hopkins in the Plant World, September, 1902, pp. 182, 183. In the plant there described there were three stems from the same rootstock and one of these "had three whorls of three leaves each. The lower whorls were crowded very closely together, while the upper two were half an inch apart." This peculiarity was accompanied by irregularities in the flower.

A second anomaly in the Painted Trillium is shown by two specimens in the Gray Herbarium. On one sheet are two plants that doubtless grew close together, perhaps from the same rootstock. They were collected by Mr. Swallow at Brunswick, Maine, as indicated in Dr. Gray's handwriting on the sheet. There is no date, but the appearance of the sheet indicates age. The petals and stamens, so far as I can judge, are not of the normal number, but that may well be due to the fact that the plants are passing out of flower, as the fruits are already forming and some of the petals and stamens may have fallen. In this case the abnormality lies in the enormous calyx. In both flowers the sepals are leaf-like, ovate, and taper-pointed, as in the typical leaves, though sessile. In one specimen the sepals are 8.2 cm. long and this greatly enlarged calyx is borne on a pedicel 7.5 cm. long above the leaves, which are normal, being 1 dm. long, on petioles 2.5 cm. in length. In the other specimen the sepals are 9.2 cm. long, the calyx being raised upon a pedicel 3.8 cm. long above the normal leaves, which are 9 cm. long, on petioles 1.3 cm. in length.

On another sheet in the Gray Herbarium I find the third unrecorded instance of teratology in the species in question. The specimen was collected in Fitzwilliam, New Hampshire, in May, 1891, by Miss K. L. Kimball. In this plant the leaves, sepals, petals, and styles are in fours. There are seven stamens but there was probably an additional one originally.

In the Plant World for April, 1903, p. 89, Mr. E. L. Morris states that abnormalities in *Trillium undulatum* "have been noted by the Macouns, father and son." In regard to this Mr. J. M. Macoun writes me that "neither my father nor I have ever noted teratology in *T. undulatum*," so there must have been some misunderstanding in regard to the matter.

Two other records deserve mention. In RHODORA for February, 1905, p. 40, Mr. Frederick S. Beattie says, "I collected a specimen of this [*T. undulatum*] on May 21 in Gloucester which possessed two stems proceeding from the same corm. Furthermore, on the flower of one of the two twin-stems, one of the sepals was enlarged to a length five-sixths that of the ordinary leaves, the shape of this sepal also approximating that of a leaf, rather than that of a sepal."

In the American Journal of Science and Arts, 3d series, vol. XV, February, 1878, p. 153, Dr. Asa Gray says, "Pastor Wibbe also sends a polymerous state of *Trillium erythrocarpum*. Something of the kind not rarely occurs in *Trillium*. This plant, which has been constant since discovered five years ago, has all the parts from leaves to carpels regularly increased (in the leaves apparently by chorisis) from three to nine, except that the stamens hardly keep up to double the number of the petals." Doubtless the very specimen referred to is the one that I find in the Gray Herbarium. It is labelled in Dr. Gray's handwriting, "T. erythrocarpum — 8-merous — Lily Marsh near Oswego, N. Y.— J. H. Wibbe — 1877." A careful examination of the plant, however, shows a discrepancy between the number of parts and the description as quoted above, the statement on the label being more nearly correct. There are eight sepals and eight petals and all these are normal with the exception of one sepal which has a white petaloid growth on one side. There are at least 20 stamens and on the side of the pistil that is visible there are six carpellary divisions of the ovary. The leaves are in a whorl at the top of the stem and are seven in number, but the 8-merous character is shown by the fact that one of the leaves is double. It has two midribs and is forked at the tip, the sinus between the two apices being half an inch deep.

The genus *Trillium* seems peculiarly subject to departures from the normal type and cases without number, affecting every part of the plant, have been recorded in our journals. A perusal of these shows how infinite are the combinations of abnormalities that can be found in individual plants. Various whorls of leaves of different shapes, some long-petioled and rising from the base of the stem, sepals white, petals green and petioled, ovary stalked, leaves and various parts of the flower wanting — these are but a few of the manifold changes that the various species of *Trillium* are subject to. Teratology is of great assistance in teaching us the morphology of the plant and hence is a study of much importance. It is hoped that due record will be made of the discovery of any new instance of variation in *Trillium undulatum*.

CAMBRIDGE, MASSACHUSETTS.

THE NEW ENGLAND SPECIES OF PSEDERA.

ALFRED REHDER.

ANOTHER old name has come to light to replace one of our well known generic names, for there is no doubt that we must on the ground of priority substitute the name *Psedera*[1] of Necker (Elem. Bot. 1:158. 1790) for *Parthenocissus* and also for *Ampelopsis* if we consider *Ampelopsis quinquefolia* as belonging to the latter genus. Greene, who seems to have studied very thoroughly Necker's much neglected and misunderstood work, has recently drawn attention to the fact that Necker's *Psedera* usually referred as a doubtful genus to the *Araliaceae* represents a genus based on *Hedera quinquefolia* of Linnaeus. Aside from his description the statement of Necker that the genus is based on a species of *Hedera* Linnaeus places Greene's identification beyond doubt, for Linnaeus describes only two species, *Hedera Helix* and *H. quinquefolia*, of which the second agrees exactly with Necker's description of his *Psedera*. The acceptation of this name

[1] The name is apparently shortened from *Pseudohedera*, which refers to the fact that its type had been first described as a species of *Hedera*.

relieves us of two other vexing nomenclatorial questions, the fixing of the type of *Ampelopsis* Michaux and the question whether *Quinaria* of Rafinesque should supersede *Parthenocissus* of Planchon. It will be remembered that *Ampelopsis* was published by Michaux (Fl. Bor. Am. **1**:159. 1803) with three species without indication as to which one he considered the type of the genus. Torrey & Gray (Fl. N. Am. **1**:245. 1838) took *Ampelopsis quinquefolia* as the type and referred the other species to *Vitis*, but 8 years before Rafinesque (Am. Man. Grape Vin. 6. 1830) had made *Ampelopsis quinquefolia* the type of his new genus *Quinaria*. Objections in regard to the validity of this name have been raised in account of an older homonym, Loureiro's *Quinaria* of 1790, which, however, is identical with *Cookia* Sonnerat of 1782, both being based on the same species, and therefore the older homonym being non-valid would not prohibit the use of *Quinaria* of Rafinesque. *Quinaria* and *Parthenocissus* will now become simple synonyms of *Psedera*, while *Ampelopsis* will also disappear as a genus, if *Ampelopsis cordata* and its allies are not considered as constituting a distinct genus; as it is hardly possible to separate them from *Cissus* by any constant and reliable characters, it seems best not to retain *Ampelopsis* as a genus.

Two species of *Psedera* occur in New England:[1]

PSEDERA QUINQUEFOLIA Greene, Leafl. Bot. Observ. **1**:220. 1906. — *Hedera quinquefolia* Linnaeus, Sp. Pl. 202. 1753.— *Vitis quinquefolia* Lamarck, Ill. **2**:135. 1793.— *Ampelopsis quinquefolia* Michaux, Fl. Bor. Am. **1**:160. 1803.— *Cissus hederacea* Persoon, Syn. **1**:143. 1805.— *Quinaria hederacea* Rafinesque, Am. Man. Grape Vin. 6. 1830.— *Parthenocissus quinquefolia* Planchon, De Candolle Monogr. Phan. **5**:448. 1887. High climbing shrub fastening itself by the disks of its tendrils to the support. Leaf-buds in spring and the young branchlets at the tips light red. Tendrils with 5 to 8 disk-bearing ramifications. Leaves long-petioled, 5-foliolate or occasionally 3-foliolate; leaflets ovate to ovate-oblong, 5 to 10 cm. long, acuminate, usually narrowed at the base, coarsely and usually crenately serrate, dull green above, glaucescent beneath, usually of thickish texture. Flowers on slender pedicels in 3- to 6-flowered umbels terminating the ramifications of the unequally dichotomous or thyrsoidal corymbs usually crowded at the end of the branchlets and forming leafy panicles.

[1] For fuller citation of the synonymy see Rehder, Sargent's Trees & Shrubs **1**: 183–190, (1905) and Mitteil. Deutsch. Dendr. Ges. **14**: 129–136 (1905).

Fruits globose, 5 to 7 mm. thick, bluish black, and with slight bloom, seeds usually 2 or 3, with an orbicular or sometimes obovate chalaza. Flowers from the middle of July to the end of August. New Hampshire: Seabrook, Aug. 7, 1898, *E. F. Williams*. Vermont: Burlington, Aug. 4, 1902, *A. Rehder*; Middlebury, July 7, 1878, and Sept. 30, 1880, *E. Brainerd*. Massachusetts: Amherst, August 15, 1902, *A. Rehder*; Blue Hills, Sept. 1, 1895, *W. H. Manning*, Sept. 9, 1905 *J. R. Churchill*; Cohasset, Aug. 4, 1902, *J. G. Jack*; Medford, July 31, *Wm. Boott*; Revere, Aug. 30, *E. F. Williams*; Oak Island, Revere July 16, 1882, *H. A. Young*; Lynn, May 23, 1903, *A. Rehder*; Cape Cod, Centreville, Aug. 11, 1903, *Clara I. Cheney*. Rhode Island: Tiverton, Aug. 1879, *C. S. Sargent*. Connecticut: Southington, July 17, 1898, *L. Andrews*. Distributed west to New York, Ohio, Indiana, Illinois and Missouri, south to Florida and Mexico.

Psedera quinquefolia var. **hirsuta**, n. comb.— *Cissus hederacea β. hirsuta* Pursh, Fl. Am. Sept. **1**:170. 1814.— *Ampelopsis hirsuta* [Donn, Cat. Hort. Cantabr. ed. 2. 50. 1802, nomen nudum] Roemer & Schultes, Syst. **5**:321. 1819.— *Quinaria hirsuta* Rafinesque, Am. Man. Grape Vin. 6. 1830.— *Ampelopsis Graebneri* Bolle, Gartenfl. **48**:257, tab. 1462. 1899.— *Parthenocissus hirsuta* Small, Fl. S. E. U. S. 758. 1903.— *Psedera hirsuta* Greene, Leafl. Bot. Observ. **1**:220. 1906.— Differs from the type in the pubescence, which is found in specimens typical for the variety on almost all parts of the plant, while toward its northern range of distribution they are apt to become glabrescent and are sometimes only pubescent on the young shoots as are specimens seen from Middlebury and Burlington, Vt. The young shoots are usually of a brighter red than in the type and the seeds are somewhat larger, more lustrous and have a usually obovate chalaza. Vermont: Burlington, Aug. 4, 1902, *A. Rehder*; Middlebury, Sept. 1, 1902, *E. Brainerd*. Massachusetts: Amherst, Aug. 15, 1902, *A. Rehder*. Distributed from Ontario (Dr. Wm. Macoun, orally) through western New England and along the western slope of the Alleghany mountains through New Mexico to Mexico. In the North this variety very rarely flowers and fruits, which suggests that it is not at home there, but probably introduced from the south by birds migrating north; many birds seem to be fond of the berries of *Psedera*.

The following varieties are sometimes met with in cultivation but are not found wild in New England:

PSEDERA QUINQUEFOLIA var. **murorum**, n. comb.— *Ampelopsis latifolia* Tausch, Flora **21**:738. 1838.— *Ampelopsis hederacea* var. *murorum* Focke, Abh. Naturw. Ver. Bremen **4**:560. 1875. A southern form distinguished from the type by its more numerous, usually 8 to 12 ramifications of the tendrils and the broader leaflets.

PSEDERA QUINQUEFOLIA var. **minor**, n. comb.— *Parthenocissus radicantissima* var. *minor* Graebner, Gartenfl. **49**:286. 1900. This is apparently a form of the proceeding variety and differs from it only in its smaller and broader, oval to orbicular-ovate, more slender-petioluled leaflets.

PSEDERA QUINQUEFOLIA var. **Saint-Paulii**, n. comb.— *Parthenocissus Saint-Paulii* Graebner, Gartenfl. **49**:283. 1900.— *Ampelopsis Saint-Paulii* Mottet, Rev. Hort. **79**:567. 1907. A variety occurring in Iowa, Illinois, Missouri and Texas; differing from the type in the tendrils having 8 to 12 ramifications and in the elliptic to obovate leaflets gradually narrowed into a very short petiolule and pubescent beneath like the branchlets; it has more than any other variety the tendency to form aerial rootlets.

PSEDERA VITACEA Greene, Leafl. Bot. Observ. **1**:220. 1906.— *Cissus quinquefolia* Sims. Bot. Mag. **51**: tab. 2443. 1824.— *Ampelopsis hederacea* var. *dumetorum* Focke, Abh. Naturw. Ver. Bremen. **4**:559. 1875.— *Quinaria quinquefolia* Koehne, Gartenfl. **41**:402. 1892, not Rafinesque.— *Parthenocissus laciniata* Small, Fl. S. E. U. S. 759. 1905. A climbing shrub usually low and rambling over bushes, but occasionally climbing high into trees, fastening itself by the twining ramifications of the tendrils; branchlets like the leaf-buds green while young, distinctly swollen at the joints, branches always without aerial rootlets; tendrils with 3 to 5 slender twining ramifications without disks. Leaves long-petioled, 5- or occasionally 3-foliolate, leaflets oval to ovate-oblong, acuminate, usually narrowed at the base, coarsely serrate or incisely serrate with the teeth often spreading, bright or dark green and lustrous above, lighter green and lustrous beneath, glabrous or sparingly pubescent on the midrib beneath. Corymbs glabrous, on slender peduncles, opposite to the leaves and solitary, distinctly dichotomously branched, with usually elongated ramifications, 5 to 7 cm. broad. Berries subglobose, 6 to 8 mm. thick, bluish black without or with slight bloom; seeds usually 3 or 4, with an oval or obovate chalaza. Flowers from the end of June to the end of July. MAINE: Hartford, *J. C. Parlin*; Piscataquis River

valley, Foxcroft, July 17, 1895, *M. L. Fernald.* New Hampshire: Winchester, Aug. 1, 1898, *B. L. Robinson.* Vermont: Charlotte, July 6 and October 11, 1879, *C. G. Pringle*; Manchester, Aug. 1, 1898, *M. A. Day*; Pownal, banks of Hoosic River, June 27, 1904, *J. R. Churchill, A. Rehder.* The specimens from Winchester are not typical but suggest a possible hybrid between *Psedera vitacea* and *P. quinquefolia.* Distributed from eastern Canada and New England through northern New York and the Great Lake region to Manitoba, Montana, Wyoming, Utah, Arizona, New Mexico, Texas, Kansas and Iowa.

The following varieties and forms can be distinguished:

Psedera vitacea forma **macrophylla**, n. comb.— *Vitis quinquefolia* var. *macrophylla* Lauche, Deutsch. Dendr. 470. 1880.— *Ampelopsis quinquefolia* b. *latifolia* Dippel. Handb. Laubholzk. **2**:474. 1892. This is only a garden form with large leaves, the leaflets being sometimes up to 10 cm. broad.

Psedera vitacea var. **dubia**, n. comb.— *Parthenocissus hirsuta* Graebner, Gartenfl. **49**: 251. 1900.— *Parthenocissus vitacea* var. *dubia* Rehder, Mitt. Deutsch. Dendr. Ges. **14**:135. 1905. This is a somewhat doubtful form; it differs from the type in the usually rather sparse hairiness of the young branchlets and the under side of the leaves. I have never seen a specimen which agrees exactly with Graebner's description; the specimen upon which he based his description and supposed to be from the Eastern States could not be found in the Herbarium of the Berlin Botanical Museum, as I was looking there for it. Cultivated forms named by Dr. Graebner *P. hirsuta* show but a slight pubescence and suggest a hybrid between *Psedera vitacea* and *P. quinquefolia* var. *hirsuta.*

Psedera vitacea var. **laciniata**, n. comb.— *Parthenocissus quinquefolia* δ *laciniata* Planchon in De Candolle, Monogr. Phan. **5**:449. 1887.— *Psedera laciniata* Greene, Leafl. Bot. Observ. **1**:220. 1906. This is the Rocky Mountain form and occurs in Wyoming, Colorado, Utah, Arizona and New Mexico. It differs from the type in its smaller, narrower and incisely serrate leaflets and their usually pale yellowish green color.

Besides these two species only one more occurs in North America; this is **Psedera heptaphylla**, n. comb.— *Ampelopsis heptaphylla* Buckley, Proc. Philad. Acad. 1861:450.— *Vitis hederacea* var. *texana* Buckley ex Durand, Bull. Soc. Acclim. Paris **9**:486. 1862.— *Psedera*

texana Greene, Leafl. Bot. Observ. 1:220. 1906. Occurs in Texas and is easily distinguished from *P. vitacea* by its 6- to 7-foliolate leaves.

Of the foreign species only the well known "Boston Ivy," so extensively planted for the covering of walls and buildings, need to be mentioned here; it is **Psedera tricuspidata**, n. comb.— *Ampelopsis tricuspidata*, Siebold & Zuccarini, Abh. Akad. Wiss. Muench. 4:88. 1846.— *Parthenocissus tricuspidata* Planchon, De Candolle Monogr. Phan. 5:452. 1887.— *Ampelopsis Veitchii* Hort. This species differs from its American congeners in having partly three-lobed and partly 3-foliolate leaves. As it flowers and fruits freely in southern New England, it may possibly soon become naturalized and carried even to localities remote from settlements through the agency of birds which are often seen feeding on the berries.

Arnold Arboretum.

NOTES ON THE VASCULAR PLANTS OF THE NORTHEASTERN UNITED STATES.

B. L. Robinson.

In the course of work at the Gray Herbarium, it has been necessary, during the last few months, to assign new names to a considerable number of plants (many of them minor varieties and forms), which, either from changed views regarding their proper classification or more often from the provisions of the Vienna Rules of Botanical Nomenclature, can no longer be accurately designated by previously existing names and combinations. As the new combinations needful must from time to time be employed in the identification of specimens for persons preparing local floras or otherwise desirous to mention such names in publication, it seems best to record them here briefly with the explanatory synonymy.

Asplenium platyneuron (L.) Oakes, var. **incisum** (E. C. Howe), n. comb. *A. ebeneum* Ait., var. *incisum* E. C. Howe, Ann. Rep. Regents Univ. N. Y. xxii. 104 (1869); Gordinier & Howe, Fl. Rensse-

laer Co., N. Y., 38 (1894). *A. ebeneum* Ait., var. *Hortonae* Davenp. Rhodora, iii. 1, t. 22 (1901).— On noticing the close correspondence of characters given by Dr. E. C. Howe for var. *incisum* and those of Mr. Davenport's var. *Hortonae*, the writer applied to Prof. Charles H. Peck for further information regarding the New York plant. Prof. Peck kindly supplied further details as to the type specimen of var. *incisum* and sent a tracing of one of its fronds. From the information thus gained it appears certain that the two varieties are identical. The older name is of course to be maintained under the altered specific name. This attractive plumose variety of *A. platyneuron* has been reported at isolated stations from Vermont to Maryland, Missouri, and Arkansas.

Aspidium Goldianum Hook., var. **celsum** (Palmer), n. comb. *Dryopteris Goldieana*, subsp. *celsum* Palmer, Proc. Biol. Soc. Wash. xiii. 65, t. 1 (1899). The Vienna Rules are unhappily incomplete as to the Pteridophytes. This large group of plants, as well as the Bryophytes and Thallophytes, was not covered by the list of nomina conservanda. However, a note from Article 9 states explicitly that "lists of nomina conservanda for all divisions of plants other than Phanerogams" are subject to consideration at the Congress of 1910. Under these circumstances it seems unwise to abandon such well established generic names as *Aspidium* or to take up hurriedly in their place names like *Dryopteris*, which are precisely parallel to many which in the case of the flowering plants it has seemed best to discard.

Woodsia Cathcartiana, n. sp. *W. scopulinae* affinis et simillima, sed minute glanduloso-puberula nec hispidula; frondibus 2–3 dm. altis obscure viridibus firmiusculis lanceolatis 25–55 mm. latis bipinnatifidis; pinnis oblongis, inferioribus distantibus, lobis sinubus modice latis separatis oblongis denticulatis; soris submarginalibus; indusio obscuro eo *W. scopulinae* simile.— *W. scopulina* D. C. Eaton apud Gray, Man. ed. 6, 691 (1890), non D. C. Eaton, Can. Nat. ii. 90 (1865).— Nearly related and very similar to *W. scopulina*, but minutely glandular-puberulent, not hispidulous; fronds 2–3 dm. high, dull green, rather firm in texture, lanceolate, 25–55 mm. wide, bipinnatifid; pinnae oblong, the lower distant; lobes oblong, denticulate, separated by rather wide sinuses; sori submarginal; indusium obscure, similar to that of *W. scopulina*. – Taylor's Falls of the St. Croix River, Minnesota, 1874, *Miss Ellen Cathcart* (type, in hb. Gray); also on rocks, Lower Falls of the Menomine River, Michigan, 31 August, 1892, *C.*

F. Wheeler. This species was sent to Dr. Gray soon after its original collection. It was referred by him to Prof. Eaton, who evidently was somewhat puzzled by it. He reported it as belonging to his *W. scopulina* remarking, however, upon its peculiar glandular puberulence. Much additional material of the real *W. scopulina*, a species frequent from the Rocky Mountains westward, is now at hand and the constancy of the distinctions pointed out above is such as to warrant the publication of the plant of Minnesota and Michigan as a separate species.

Sagittaria latifolia Willd., forma **obtusa** (Muhl.), n. comb. *S. obtusa* Muhl. Cat. 86 (1813). *S. variabilis*, var. *obtusa* Engelm. apud Gray, Man. ed. 5, 493 (1867).

Sagittaria latifolia Willd., forma **gracilis** (Pursh), n. comb. *S. gracilis* Pursh, Fl. ii. 396 (1814). *S. variabilis*, var. *gracilis* Engelm. l. c.

Sagittaria latifolia Willd., forma **diversifolia** (Engelm.), n. comb. *S. variabilis*, var. *diversifolia* Engelm. l. c.

Lophotocarpus calycinus J. G. Smith, var. **maximus** (Engelm.), n. comb. *Sagittaria calycina*, var. *maxima* Engelm. apud Torr. Bot. Mex. Bound. 212 (1859).

Camassia esculenta (Ker), n. comb. *Scilla esculenta* Ker, Bot. Mag. t. 1574 (1813). *C. Fraseri* Torr. Pacif. R. Rep. iv. 147 (1856). *Quamassia esculenta* Coville, Proc. Biol. Soc. Wash. xi. 65 (1897), where detailed and critical synonymy may be found. *Q. hyacinthina* Britton, Ill. Fl. i. 423 (1896).— It is to be carefully noted that the plant here called *C. esculenta*, dating back to the synonym of Ker (1813) is quite distinct from the *C. esculenta* of Lindley, a larger-flowered species of the Northwest, which, dating back merely to the synonym *Quamasia esculenta* Raf. Am. Month. Mag. ii. 265 (1818), must take the name *Camassia quamash* (Pursh) Greene, Man. Bay Reg. 313 (1894), a combination derived from the earlier *Phalangium quamash* Pursh, Fl. Am. Sept. i. 226 (1814).

Oxybaphus linearis (Pursh), n. comb. *Allionia linearis* Pursh, Fl. 728 (1814). *Oxybaphus angustifolius* Sweet, Hort. Brit. ed. 2, 429 (1830). *Allionia Bushii* Britton, Bull. Torr. Bot. Club, xxii. 223 (1895).

Polygonum dumetorum, L., forma **cristatum** (Engelm. & Gray), n. comb. *P. cristatum* Engelm. & Gray, Journ. Bost. Soc. Nat. Hist. v. 259 (p. 51 of the reprint), 1845.— Repeated examinations of many

specimens of *P. dumetorum* and *P. cristatum* have failed to show other differences than the slight and inconstant toothing of the wings of the fruiting calyx.

Acnida tuberculata Moq., var. **prostrata** (Uline & Bray), n. comb. *A. tamariscina*, var. *prostrata* Uline & Bray, Bot. Gaz. xx. 158 (1895).

Amaranthus hybridus L., var. **hypochondriacus** (L.), n. comb. *A. hypochondriacus* L. Spec. Pl. 991 (1753).

Carya glabra (Mill.) Spach, var. **villosa** (Sarg.), n. comb. *Hicoria glabra*, var. *villosa* Sarg. Silv. vii. 167 (1895). *H. villosa* Ashe, Bull. Torr. Bot. Club, xxiv. 481 (1897).

Asarum canadense L., var. **reflexum** (Bicknell), n. comb. *A. reflexum* Bicknell, Bull. Torr. Bot. Club, xxiv. 531, 533, t. 317 (1897). — Repeated efforts to find constant distinctions between *A. canadense* and the sometimes well marked *A. reflexum* have failed, and it appears that the latter plant is more naturally classed as a variety of the former.

Radicula obtusa (Nutt.) Greene, var. **sphaerocarpum** (Gray), n. comb. *Nasturtium sphaerocarpum* Gray, Mem. Am. Acad. iv. 6 (1849). *Roripa sphaerocarpa* Britton, Mem. Torr. Bot. Club, v. 170 (1894). — In taking up the old generic name *Radicula* for the genus which has long passed as *Nasturtium*, the writer merely follows the course rendered necessary by the Vienna Rules. It is one of several cases, happily rather few, where from apparent oversight the list of nomina conservanda was not made sufficiently complete to guard against awkward change.

Radicula palustris Moench, var. **hispida** (Desv.), n. comb. *Brachylobus hispidus* Desv. Journ. Bot. iii. 183 (1814). *Nasturtium hispidum* DC. Syst. Veg. ii. 201 (1821). *N. palustre*, var. *hispidum* Gray, Man. ed. 2, 30 (1856). *Roripa hispida* Britton, Mem. Torr. Bot. Club, v. 169 (1894).

Radicula aquatica (Eaton), n. comb. *Cochlearia aquatica* Eaton, Man. ed. 5, 181 (1829). *Roripa americana* Britton, Mem. Torr. Bot. Club, v. 169 (1894). *Nasturtium lacustre* Gray, Gen. Ill. i. 132 (1848).

Radicula Armoracia (L.), n. comb. *Cochlearia Armoracia* L. Spec. Pl. 648 (1753). *Nasturtium Armoracia* Fries, Fl. Scan. 65 (1835). *Roripa Armoracia* Hitchc. Spring Fl. Manhattan, 18 (1894).

Physocarpus opulifolius (L.) Maxim., var. **intermedius** (Rydberg), n. comb. *Opulaster intermedius* Rydberg, apud Britton, Man. 492 (1901).

Pyrus arbutifolia L. f., var. **atropurpurea** (Britton), n. comb. *Aronia atropurpurea* Britton, Man. 517 (1901).

Amelanchier oblongifolia Roem., var. **micropetala**, n. var., fruticosa suberecta plus minusve ramosa, saepissime 2–9 dm. alta, foliis, pubescentia, etc., formae typicae omnino simillima, sed floribus multo minoribus, petalis vix conspicuis linearibus vel oblanceolato-oblongis, vel spatulatis calycem paulo superantibus.— Branching shrub, suberect, usually 2–6 dm. high, in leaves, pubescence, etc., closely similar to the typical form, but with much smaller flowers, the petals scarcely conspicuous, linear, oblanceolate-oblong, or spatulate, 3–4 mm. long, 1–1.5 mm. wide, scarcely surpassing the calyx. — Massachusetts: on ledges, toward the summit of Blue Hill, Milton, *G. G. Kennedy & M. L. Fernald*, 7 May, 1899 (type, in hb. Gray), *Bartlett*, no. 846, 14 July, 1907 (hb. Gray); moors, Nantucket, *J. R. Churchill*, 30 May, 1904 (hb. Gray): Connecticut: thin soil on ledge of rocks, Oxford, *E. B. Harger*, 12 May and 7 June, 1901 (hb. Gray); dry ground, Alewive Cove, Waterford, *C. B. Graves*, 20 May and 3 July, 1901 (hb. Gray); dry sandy soil, Southington, *C. H. Bissell*, 12 May and June 13, 1901. This low small-flowered plant is strikingly different in its small petals from the common and typical form of the species, but intermediates have already been observed at several stations, as for instance at Wilmington, Massachusetts, by Mr. Hollis Webster, which seem fully to justify the view that the smaller-flowered form is merely a variety of the larger.

Acacia angustissima (Mill.) Ktze., var. **hirta** (Nutt.), n. comb. *A. hirta* Nutt. in Torr. & Gray, Fl. i. 404 (1840). *A. filicoides* Trelease ex Branner & Coville, Rep. Geol. Surv. Ark. 1888, pt. 4, 178 (1891), and *A. filiculoides* Trelease ex Britton, Ill. Fl. ii. 254 (1897), as to plant, not as to synonymy.

Astragalus eucosmus, n. nom. *A. orobioides*, var. *americanus* Gray, Proc. Am. Acad. vi. 205 (1864). *Phaca parviflora* Nutt. ex Torr. & Gray, i. 348 (1838), not *A. parviflorus* (Pursh) MacMillan. *P. elegans* Hook. Fl. Bor. Am. i. 144 (1830). *A. elegans* Sheldon, Minn. Bot. Stud. i. 154 (1894); Britton in Britton & Brown, Ill. Fl. ii. 303 (1897), not Bunge, Sp. Astrag. Geront. ii. 89 (1869).

Desmodium canescens (L.) DC., var. **hirsutum** (Hook.), n. comb. *D. canadensis*, var. *hirsuta* Hook. Comp. Bot. Mag. i. 23 (1835). *D. canescens*, var. *villosissimum* Torr. &. Gray, Fl. i. 365 (1838). *Meibomia canescens*, var. *hirsuta* Vail, Bull. Torr. Bot. Club, xix. 111 (1892).

Desmodium bracteosum (Michx.) DC., var. **longifolium** (Torr. & Gray), n. comb. *D. canadense,* var. *longifolium* Torr. &. Gray, Fl. i. 365 (1838). *Meibomia longifolia* Vail, Bull. Torr. Bot. Club, xxiii. 140 (1896).

Ilex opaca Ait., forma **xanthocarpa**, n. f., formae typicae omnino simillima sed drupis laete flavis.— Quite like the typical form but with bright yellow drupes.— Near New Bedford, Massachusetts, where discovered by Mr. E. Williams Hervey, in the autumn of 1900 (type, in hb. Gray).

Ilex laevigata (Pursh) Gray, forma **Herveyi**, n. f., omnino ut forma typica sed drupis laete flavis.— Altogether like the typical form, but the drupes bright yellow.— Near the pumping station, Little Quittacus Lake, Lakeville, Massachusetts, 22 October, 1900, *E. W. Hervey* (type, in hb. Gray).

Lechea intermedia Leggett, var. **juniperina** (Bicknell), n. comb. *L. juniperina* Bicknell, Bull. Torr. Bot. Club, xxiv. 88 (1897).

Lechea maritima Leggett, var. **interior**, n. var., quam forma typica paulo gracilior laxius ramosa viridior; foliis tenuioribus; pedicellis filiformibus 2–3 mm. longis.— A little more slender than the typical form, more loosely branched, and greener; leaves thinner; pedicels threadlike, 2–3 mm. long.— Dry soil, Troy, N. H., 11 September, 1897, *B. L. Robinson,* no. 588 (type, in hb. Gray). This variety is proposed to cover a puzzling, by no means rare, inland phase of *L. maritima,* in many ways simulating *L. intermedia* yet showing the pyramidal branching and slightly smaller fruit of the former species.

Oenothera muricata L., var. **canescens** (Torr. & Gray), n. comb. *O. biennis,* var. *canescens* Torr. & Gray, Fl. i. 492 (1840).

Oenothera laciniata Hill, var. **grandiflora** (Wats.), n. comb. *O. sinuata,* var. *grandiflora* Wats. Proc. Am. Acad. viii. 581 (1873). *O. laciniata,* var. *grandis* Britton, Mem. Torr. Bot. Club, v. 358 (1894).

Oenothera linearis Michx., var. **Eamesii**, n. var., decumbens; foliis ellipticis, majoribus 2.7 cm. longis, 1.1 cm. latis. — Decumbent; leaves elliptical, the larger 2.7 cm. long, 1.1 cm. wider.— Sandy shore of a salt pond Stratford, Connecticut, *E. H. Eames* (type, hb. Gray).

Oenothera longipedicellata (Small), n. comb. *Kneiffia longipedicellata* Small, Bull. Torr. Bot. Club, xxiii. 178 (1896).

Oenothera pratensis (Small), n. comb. *Kneiffia pratensis* Small, Fl. S. E. U. S. 842, 1335 (1903).

Spermolepis patens (Nutt.), n. comb. *Leptocaulis patens* Nutt.

ex DC. Prodr. iv. 107 (1830). *Apiastrum patens* Coult. & Rose, Rev. Umbell. 110 (1888).

Rhus glabra L., forma **laciniata** (Carr.), n. comb. *R. glabra*, var. *laciniata* Carr. Rev. Hort. 1863, p. 7.

Oxypolis rigidior Coult. & Rose, var. **ambigua** (Nutt.), n. comb. *Oenanthe ambigua* Nutt. Gen. i. 189 (1818). *Sium longifolium* Pursh, Fl. 194 (1814). *Archemora rigida* ~~*rigida*~~, var. *ambigua* Wood, Class-Book, 380 (1861). *Archemora ambigua* DC. iv. 188 (1830). *Tiedemannia rigida*, var. *ambigua* Coult. & Rose, Rev. Umbell. 47 (1888). *Oxypolis rigidus*, var. *longifolius* Britton, Mem. Torr. Bot. Club, v. 339 (1894).— It is to be noticed in regard to this combination that the specific name should retain its earlier form, *rigidior*, and not be changed as by several recent writers to the positive degree. The restoration of the varietal name *ambigua* is necessitated by Art. 48 of the Vienna Rules and rests upon the fact that *ambigua*, not *longifolia*, was the name first applied to this plant in the varietal category.

Bartonia paniculata (Michx.), n. comb. *Centaurella paniculata* Michx. Fl. i. 98, t. 12, f. 1 (1803). *C. Moseri* Steud. & Hochst. ex Griseb. Gen. et Spec. Gent. 308 (1839). *Bartonia lanceolata* Small, Fl. S. E. U. S. 932 (1903).

Gerardia grandiflora Benth., var. **serrata** (Torr.), n. comb. *G. serrata* Torr. ex Benth. in DC. Prodr. x. 521 (1846). *Dasystoma Drummondi*, var. *serrata* Benth. l. c. *G. grandiflora*, var. *integriuscula* Gray, Syn. Fl. ii. pt. 1, 291 (1878). *Dasystoma serrata* Small Bull. Torr. Bot. Club, xxviii. 451 (1901).

The Discovery of Cryptogramma Stelleri in Maine.— *Cryptogramma Stelleri* (Gmel.) Prantl (*Pellaea gracilis* Hook.) has not been reported, I believe, from Maine. On July 29, 1906, I found it growing in abundance at Berry Ledge in West Paris. The plants were not on limestone, but upon a coarse granitic formation. When acid was applied to the rock, however, it caused effervescence, showing the presence of lime in the rock.— Walter L. Bacon, Norway, Maine.

Two Additions to the Lichen Flora of the Blue Hills.— I have found lately in my herbarium the following species of lichens

which are not included in the "Flora of the Blue Hills, Middlesex Fells, Stony Brook and Beaver Brook Reservations, of the Metropolitan Park Commission" of 1896, compiled and edited by Mr. Walter Deane. The species are in no way remarkable, but are perhaps worthy of record as additions to a published flora.

1. *Parmelia caperata* (L.) Ach. One specimen from Chickatawbut Hill, Oct. 7, 1906, collected by Miss E. C. Barker, and one specimen from Great Blue Hill, May 18, 1907, collected by Mrs. G. S. Parker.

2. *Umbilicaria Muhlenbergii* (Ach.) Tuckerm. Two specimens, data as above.— R. HEBER HOWE, JR., Thoreau Museum, Concord, Massachusetts.

PRELIMINARY LISTS OF NEW ENGLAND PLANTS,— XV. ADDENDA. — To a preliminary check-list of New England *Loranthaceae, Euphorbiaceae,* and certain other families, published in RHODORA, vi. 85–88, the following additions have been made, which may now be indicated with a + sign in the proper columns in the list, since through the kindness of Professor J. F. Collins, Dr. E. H. Eames, and the late J. A. Wheeler, Esq., specimens of all have been examined by the writer and are in his herbarium.

Arceuthobium pusillum Peck. RHODE ISLAND: Bowdish Reservoir, Glocester, 19 May, 1904, *J. F. Collins.* See RHODORA, vi. 150.

Crotonopsis linearis Michx. CONNECTICUT: Milford, 30 August, 1907, *E. H. Eames,* no. 5876.

Euphorbia Lathyris L. CONNECTICUT: Bridgeport, 2 August, 1897, *E. H. Eames.* By oversight in copying omitted from the former list.

Euphorbia Preslii Guss. NEW HAMPSHIRE: Meredith Neck, August, 1894, *Mrs. L. A. Carter;* Milford, 5 September, 1902, *J. A. Wheeler.*— ARTHUR STANLEY PEASE, Cambridge, Massachusetts.

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